

CLAIMS

What is claimed is:

1. A catalyzed adsorber for treating exhaust gas, comprising:
 - a substrate;
 - a zeolite underlayer disposed over the substrate; and
 - 5 a catalyst overlayer disposed over the underlayer wherein the overlayer has a non-catalyst loading of about 1.0 g/in³ or less.
2. The catalyzed adsorber of Claim 1, wherein the substrate is a cordierite monolith material.
3. The catalyzed adsorber of Claim 3 wherein the overlayer washcoat has a thickness less than about 30 microns.
4. The catalyzed adsorber of Claim 1, wherein the underlayer further comprises an inorganic oxide.
5. The catalyzed adsorber of Claim 4, wherein the inorganic oxide is alumina.
6. The catalyzed adsorber of Claim 1, wherein the overlayer non-catalyst loading is about 0.8 to about 1.0 g/in³.
7. The catalyzed adsorber of Claim 6, wherein the overlayer non-catalyst loading is about 0.9 to about 1.0 g/in³.

8. The catalyzed adsorber of Claim 1, wherein the overlayer has a catalyst loading of up to about 0.5 g/in³.

9. The catalyzed adsorber of Claim 8, wherein the overlayer has a catalyst loading of up to about 0.25 g/in³.

10. The catalyzed adsorber of Claim 9, wherein the overlayer has a catalyst loading of about 0.1 to about 0.2 g/in³.

11. The catalyzed adsorber of Claim 1, the catalyst is selected from the group consisting of palladium, platinum, rhodium, and mixtures and alloys comprising at least one of the foregoing catalysts.

12. The catalyzed adsorber of Claim 1, wherein the overlayer comprises less than about 3% zeolite.

13. The catalyzed adsorber of Claim 1, wherein the zeolite is a faujisite.

14. The catalyzed adsorber of Claim 13, wherein the faujisite has a Si/Al ratio of about 3.0 to about 10.

15. The catalyzed adsorber of Claim 1, wherein the overlayer further comprises an inorganic oxide.

16. The catalyzed adsorber of Claim 15, wherein the inorganic oxide is selected from the group consisting of alumina, silica, titania, magnesia, zirconia, beryllia, ceria, lanthana, zirconia, and compounds and mixtures comprising at least one of the foregoing inorganic oxides.

17. The catalyzed adsorber of Claim 16, wherein the inorganic oxide is selected from the group consisting of delta phase alumina, gamma phase alumina, and combinations comprising at least one of the foregoing inorganic oxides.

18. The catalyzed adsorber of Claim 17, wherein the inorganic oxide is lanthanum stabilized gamma phase alumina.

19. A method for making a catalyzed adsorber system for treating exhaust gas, comprising:

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providing a substrate;
disposing a zeolite underlayer over the substrate; and
disposing a catalyst overlayer over the underlayer wherein the overlayer has a non-catalyst loading of about 1.0 g/in³ or less.

20. The method for making the catalyzed adsorber as in Claim 19, wherein the overlayer non-catalyst loading is about 0.8 to about 1.0 g/in³.

21. The method for making the catalyzed adsorber as in Claim 20, wherein the overlayer non-catalyst loading is about 0.9 to about 1.0 g/in³.

22. The method for making the catalyzed adsorber as in Claim 19, wherein the overlayer has a catalyst loading of up to about 0.5 g/in³.

23. The method for making the catalyzed adsorber as in Claim 22, wherein the overlayer has a catalyst loading of up to about 0.25 g/in³.

24. The method for making the catalyzed adsorber as in Claim 23, wherein the overlayer has a catalyst loading of about 0.1 to about 0.2 g/in³.

25. The method for making the catalyzed adsorber as in Claim 19, the catalyst is selected from the group consisting of palladium, platinum, rhodium, and mixtures and alloys comprising at least one of the foregoing catalysts.

26. The method for making the catalyzed adsorber as in Claim 19, wherein the overlayer comprises less than about 3% zeolite.

27. The method for making the catalyzed adsorber as in Claim 19, wherein the zeolite is a faujisite.

28. The method for making the catalyzed adsorber as in Claim 19, wherein the overlayer further comprises an inorganic oxide.

29. The method for making the catalyzed adsorber as in Claim 28, wherein the inorganic oxide is selected from the group consisting of alumina, silica, titania, magnesia, zirconia, beryllia, ceria, lanthana, zirconia, and compounds and mixtures comprising at least one of the foregoing inorganic oxides.

30. The method for making the catalyzed adsorber as in Claim 29, wherein the inorganic oxide is selected from the group consisting of delta phase alumina, gamma phase alumina, and combinations comprising at least one of the foregoing inorganic oxides.

31. The method for making the catalyzed adsorber as in Claim 30, wherein the inorganic oxide is lanthanum stabilized gamma phase alumina.

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